

Cyanobacterial toxins: their harmful effects on aquatic communities and distribution in foodwebs

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In my paper I will address the evidence for (harmful) effects of toxic cyanobacteria on (aquatic) biota. Effects have been reported for almost all aquatic communities, including microorganisms, phyto and zooplankton, bivalves and other invertebrate macrofauna, fish from different feeding guilds, birds, and sometimes mammals. A distinction will be made between effects that have demonstrated only in controlled experiments in the laboratory or also in studies on mesocosms and enclosures, or even directly in the field. The main body of the paper will focus on the fate of cyanobacterial toxins in freshwater and marine foodwebs. What are primary routes for uptake of toxins into the foodweb? Do we have clear evidence for vectorial transport - for instance from filter feeding zooplankton to fish - of toxins through the foodweb? Has bioaccumulation, or perhaps more correctly biomagnification of cyanobacterial toxins been substantiated? Are humans at risk from consumption of aquatic biota like mussels, crayfish and prawns? From the state of the art knowledge I will identify the most pressing knowledge gaps and make suggestions for a predictive (quantitative) exposure-effect model.